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Routledge
Taylor & Francis Group

Educational Gerontology

ISSN: 0360-1277 (Print) 1521-0472 (Online) Journal homepage: http://www.tandfonline.com/loi/uedg20

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To cite this article: Hannah R. Marston, Michael Kroll, Dennis Fink, Helios de Rosario & Yves J. Gschwind (2016): Technology use, adoption and behavior in older adults: Results from the iStoppFalls project, Educational Gerontology, DOI: 10.1080/03601277.2015.1125178

To link to this article: http://dx.doi.org/10.1080/03601277.2015.1125178

Accepted author version posted online: 08 Jan 2016.
Published online: 08 Jan 2016.

EDUCATIONAL GERONTOLOGY
http://dx.doi.org/10.1080/03601277.2015.1125178

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Technology use, adoption and behavior in older adults: Results from the iStoppFalls project

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ABSTRACT

Technology use is a common constituent of modern life. However, little is known about older adults' use of technology. This article presents a subset of data collected via the technology deployed in the iStoppFalls randomized control trial. The primary focus lies on questions about digital device/Internet use, ownership, length, and frequency as well as social networking. Data was collected from participants aged 65 years or older. Seventy-eight participants completed a specifically developed technology survey as part of the baseline assessment. Results showed that the majority of subjects owned a computer with men being its main user. Participants used technological devices on a daily basis for more than 1 year. The main reason for using technology was e-mail communication, search engines, text processing, and online shopping. Only a few participants used social network applications, with Google+ and Facebook being the most popular ones. Future work should consider an in-depth qualitative approach to further increase understanding of technology use in older adults.

Since the introduction of smart phones, the Internet has become even more important within society, particularly for adults categorized as Millennials (18–33 years) and Generation X (34–45 years). In this context, access to content on the Internet is crucial for most daily activities (Orlov, 2011). However, information and communication based technologies (ICT) became also increasingly popular among older adults. Taking into account that the Office for National Statistics (ONS) estimated that 23% of the population in United Kingdom and 31% of the German population will be 65 years or older by 2035 (ONS, 2012), respectively, these demographic changes will have a great impact on ICT development and usage.

As a consequence of the aging population, the concept of utilizing technology to improve quality of life (QoL), rehabilitation, and general health has become a strong focus of both clinical researchers and software developers. The uptake of technology by older adults in the United States has increased drastically during the last 5 years according to Zickuhr and Madden (2012). Their results showed that 53% of American adults aged 65 years or older are using the Internet or e-mail services. Similarly, Orlov (2011) described an increase of Internet access by older adults over 65 years of age. However, in those aged 74 years or older, only 30% use the Internet, mainly because "two-thirds of the 74+ population do not own a computer (laptop or desktop); and virtually none have a table computer or smart phone" (p. 5).

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The frequency of Internet usage by older adults is less than in younger people. Berry (2011) states that "[…] all Internet users log on every day, while only 59% of older users (above 65) do this" (p. 5). Furthermore, the Ofcom Adult Media Literacy Survey (2009) investigating the functional facet of (Internet) users highlighted that 38% of Internet users across all age groups have a "profile on a social networking" site such as Facebook, Myspace, or Bebo, but only 8% are aged 55 years or older (Berry, 2011, p. 5). This implicates that there is a large number of individuals who may potentially benefit from using such forms of technology in their daily lives. However, limited access and lack of user knowledge may hinder older adults to effectively use new technologies.

The background context

The digital divide

The global digital divide describes and observes the divide between developing and developed countries. It does this on an international level (Chinn & Fairlie, 2004) regarding the inequality between individuals, households, business, and geographic areas as well as socioeconomic and demographic measures (U.S. Department of Commerce, 1995). There are two different perspectives to the digital divide known as first and second order divides (Kim, Lee, & Menon, 2009). The first order is based on material and relates to the ownership and/or access of technology including personal computers, modems, and Internet connection, which is often associated to the geographic location (Kim et al., 2009). The second order is based on individual skill and usage. Although users may have all the required hardware components to access the Internet, limited knowledge and skills may hinder them in accessing its content and information (Kim et al., 2009). The term digital divide denotes to the inequalities relating to access, and the use or knowledge of ICT between groups (Chinn & Fairlie, 2004; U.S. Department of Commerce, N.T. and I.A. (NTIA), 1995).

The digital divide is associated with two key aspects: (a) ownership or access to technology; (b) having the skills and experience to use it. Although there could be a wealth of knowledge enabling people to access the technology hardware and software, for some, not knowing how to execute a process, access is blocked (Berry, 2011).

The primary research undertaken in regards to the digital divide focused on the first divide rather than the second (Brandtzæg, Heim, & Karahasanović, 2011; DiMaggio & Hargittai, 2001). Brandtzaeg et al. (2011) suggested that digital inclusion should include not only a "one-sided focus on frequency of use or continua of use" (p. 124), but also "to be able to empirically distinguish and measure various types of Internet users to enable a more precise and nuanced approach to internet behavior" (Brandtzæg et al., 2011).

In recent years, there have been several initiatives and interventions introduced by the United Kingdom (UK) government including infrastructure, cost, and skills to enable cost-effective Internet access to individuals, households and the community (Berry, 2011). Berry (2011) reports the British initiative of tackling the infrastructure issue through expanding and upgrading broadband across the whole UK. Berry (2011) notes how the European Union (EU) has also been upgrading their infrastructure, and primarily aimed to "reduce inequalities in Internet access, defined geographically: that is, disparities in access between different regions" (Berry & Berry, 2006, p. 6).

However, several limitations were reported by Berry (2011) including the inability to afford the hardware to access the Internet.

Conversely, the European Commission (EC, 2010) reported that 57% of households in Europe have an Internet connection of which 17% are one-person households of individuals aged 60 or older. In this context, Berry (2011) noted the older a person is, the lower the likelihood of having internet access at home (c.f. Table 2). Without Internet access, older adults cannot communicate with relatives (66%) and send/receive emails (53%), two frequently used services among older adults

Table 1. The decrease of Internet connection by age (Berry, 2011).[a]

Age (years)	Internet connection (%)
55–64	52
65–74	35
75+	14

[a]Permission granted by the ILC www.ilcuk.org.uk.

(Orlov, 2011). Further, Zickuhr and Madden (2012) noted the use of access to the Internet and there is a significant decrease for those aged 75 years or older (Table 1).

Social technology use and ownership by older adults

Computer ownership and Internet use is growing among older adults. Yet, publications focusing on those topics in adults aged 70 years and older are scarce. There only have been a handful of reports documenting older computer users and Internet literacy (Berry, 2011; Community Network, 2010; European Commission, 2005; Hannon & Blackwell, 2007; Macfarlane, Kinirons, & Bultitude, 2012; Zickuhr, 2010).

Through interviews and engagement with the participants, Hannon & Blackwell (2007) ascertained there was little motivation by the participants rather than interest to use the Internet. Participants were compelled to provide a rationale for being online, the relevance of how the technology can form a part of their daily activities or how the Internet can actually benefit their needs.

Conversely, Hannon and Blackwell (2007) reported how adults aged 65+ years once online "became some of the most enthusiastic, able users" (p.13). Furthermore, Hannon and Blackwell (2007) noted limitations in learning how to use new technologies after retirement compared to the opportunities to expand technological skill sets more readily accessible in employment environments.

> Hannon and Blackwell (2007) propose recommendations whereby tailored, continuous and one-to-one support was provided to meet the needs and requirements of individuals. Otherwise, older adults would struggle with the adoption of technology, especially with the rapid developments that society has witnessed over the last 10 to 15 years. "If I had the time and the right teacher I would probably get involved, but I don't want to be the dummy in the class room again and I don't want to play the fool. What I need is a teacher who speaks my language, who speaks English, not all that jargon, and who can go slow at my pace" (Peter, aged 59) (pp. 13–14).

Similarly, a telephone survey (n = 1,013) conducted by Keenan & A. K. Management (2009) to investigate Internet us by adults aged 50+ years revealed that 60% use a personal computer (PC), and 25% use a PC at work. A total of 74% respondents used the Internet on a daily basis, 38% accessed the Internet several times a day, 18% used the Internet once a day, and 16% reported constant use of the Internet. In terms of experience using the Internet, 42% reported Internet use for >10 years, 32% for 6 to 10 years, 20% for 1 to 5 years, and 4% for <1 year.

Common purposes for using the Internet included, seeking information (57%), sending and receiving e-mails (56%), online shopping (44%), travel reservations (41%), work-related purposes (35%), online banking (34%) and reading newspapers, magazines or books (31%). Over one third of respondents had taught themselves to use the Internet (39%), 26% learned through their respective employment, 25% had learned via a friend or relative, and 8% attended a class. In contrast to other published literature (Berry, 2011; De Gloria, Bellotti, & Berta, 2012; Hannon & Blackwell, 2007;), respondents were asked why they did not want to learn how to use the Internet. Results showed that 47% reported a lack of interest, time (11%), or technical skills (9%). A further 4% reported concerns about online security including identity theft. Four percent did not have computer access and 3% thought that the Internet was too expensive.

The Pew Research Center conducted a survey (Zickuhr & Madden, 2012; Zickuhr, 2010) completed by 2,254 adults across the following age groups (18–29, 30–49, 50–64, and 65+). The survey items included Internet access, frequency of using the Internet, online activities, and digital devices owned. Results showed that 53% of adults aged 65+ used the Internet or e-mail (Table 2).

Table 2. The age breakdown of Internet usage (Orlov, 2011).[a]

	Millennials	Generation X	Younger Baby Boomers	Older Baby Boomers	Silent Generation	General Issue (G.I.) Generation	All
Age group	18–33	34–45	46–55	56–64	65–74	74+	18+
% online	95	86	81	76	58	30	79

[a]Permission granted by Linkage Connect http://www.linkageconnect.com/.

Table 3. Percentage of users aged 50+ years using social media (Duggan & Page, 2015).[a]

	50–64 years (%)	65+ years (%)
Online forum	13	8
Tumblr	5	2
Facebook	64	48
Pinterest	24	16
Instagram	11	4
LinkedIn	26	12
Twitter	13	6

[a]Permission granted by Pew.

In the same report, across the four age groups categorized, 69% of adults aged 65+ owned a cell phone, 48% owned a desktop computer, 32% owned a laptop, 11% owned an e-reader, and 8% owned a tablet. With the development of social networking sites, there is the possibility that this could decrease social isolation and increase communication among friends and family members. Previously, (Zickuhr & Madden, 2012) reported 34% of older adults used social networking sites such as Facebook, while 18% accessed these sites on a daily basis. In this context, Nielsen (2009) highlighted that websites such as Facebook have "added almost twice as many 50–64 year olds visitors (13.6 million) as it had under 18-year-old visitors (7.3 million) in 2012" (p. 4). Table 3 displays the results for adults aged 50+ across different geolocations in the United States.

Methods

Objectives

The aim of this study is to report the results of a technology questionnaire initially applied by Marston (2012) in her PhD and a second iteration was utilized by Gschwind et al. (2014) in the iStoppFalls randomized controlled trial (RCT). This paper aims to provide a series of results associated with technology use by older adults (65 years or older) collected from a survey distributed across three study sites in three different countries. Based upon the results, the authors provide a series of recommendations.

Participants

A total of 146 participants (mean age 74.27, standard deviation, $SD = 6$) completed the survey across the three study centers Cologne ($n = 61$, 41.78%), Sydney ($n = 43$, 29.45%) and Valencia ($n = 42$, 28.77%). Gender was not equally distributed (female $n = 87$, 59.6%; male $n = 59$, 40.4%). The number of participants varied across age categories: baby boomers ($n = 23$, 15.75%), silent generation ($n = 82$, 56.16%), general issue (GI) generation ($n = 30$, 20.55%) and the oldest old ($n = 11$, 7.53%).

Randomization

Computer-based randomization allocated participants to the intervention group (IG) conducting a 16-week exercise program using the iStoppFalls system via their television set at home (Gschwind et al., 2014) or a control group. The control group received an educational booklet with general health advice. All participants assigned to the intervention group were asked to complete the digital device survey as part of their baseline assessment prior to undertaking the exercise program.

Technology survey

This survey was adapted from a previous instrument (Marston, 2012) that did not include items associated to social networking habits. This version of the survey (version II) comprised of 44 items. Each section varied in regards to the number of items included (see the Appendix). Adaptation of the survey was conducted to incorporate social networking habits while maintaining the original items: computer ownership (technology use), video game ownership, length and frequency of game playing, digital device ownership, video game genres, purchasing habits, learning how to play games, hobbies and interests.

This survey was translated into German and Spanish to enable completion by participants in the respective study sites. Translation of the survey into Spanish followed the process of being translated by a member of the team who was proficient in English to initially make a draft translation. This draft was then revised by the other project members to ensure that it was cohesive and suitable for the target audience. The principle investigator revised the language from a technical standpoint. In addition, another colleague, a qualified social worker, reviewed and revised the document to ensure cohesion and that the language was suitable for older persons. Translation of the survey from English to German was undertaken by a member of the team who had a good proficiency of English and who also utilized an online dictionary for any words that were unfamiliar. Once an initial draft was completed, the team member conferred with another colleague who was also able to substantiate that the translation was appropriate and reflected the original version (English) prior to it being distributed across the respective participants.

Results

Descriptive and chi-square statistical analyses were performed associated to the three study centers, age groups, and gender.

Subanalyses regarding study center

Further analyses were undertaken in the form of a chi-square test. Only statistically significant results are provided hereafter. The results showed significance associated to study center and computer access χ^2 (2, n = 143) = 6.9, p = .03, purpose (Internet—Social Networking) χ^2 (2, n = 146) = 8.3, p = .04, purpose (database) χ^2 (2, n = 146) = 8.3, p = .04 and the method of learning how to use social networking sites (myself) χ^2 (2, n = 146) = 9.7, p = .02. There was no further statistical significance associated to study center (Table 4).

Subanalyses for gender

Further analyses were undertaken in the form of a chi-square test. Only statistically significant results are provided hereafter. A total of five survey items was found to show statistical significance, primarily associated to purpose (Internet—Social Networking) χ^2 (3, n = 146) = 8.9, p = .03, purpose (Internet banking) χ^2 (3, n = 146) = 19.4, p < .001, purpose (online shopping) χ^2 (3, n = 146) = 8.7,

Table 4. Frequencies from the significant results for study center.

	Intervention	Control	Total
Do you have access to a computer?			
No	2	9	11
Yes	69	61	130
No reply	0	2	2
Total	71	72	143
Purpose for using the Internet (social networking)			
No	48	49	97
Yes	15	6	21
No reply	0	2	2
Not applicable	9	17	26
Total	72	74	146
Purpose for using a computer (database)			
No	45	47	92
Yes	18	8	26
No reply	0	2	2
Not applicable	9	17	26
Total	72	74	146
Method of learning how to use social networking for myself			
No	7	8	15
Yes	13	3	16
No reply	0	3	3
Not applicable	52	60	112
Total	72	74	146

Table 5. Frequencies from the significant results for gender.

	Computer usage?		
	Female	Male	Total
Gender			
No	22	6	28
Yes	62	53	115
No reply	2	0	2
Total	86	59	145
Purpose for using the Internet (social networking)			
No response	52	47	99
Yes	17	4	21
Not applicable	18	8	26
Total	87	59	146
Purpose for using the Internet (banking)			
No response	54	21	75
Yes	15	30	45
Not applicable	18	8	26
Total	87	59	146
Purpose for using the Internet (online shopping)			
No response	54	29	83
Yes	15	22	37
Not applicable	18	8	26
Total	87	59	146

$p = .03$, purpose (database) χ^2 (3, $n = 146$) = 12.1, $p = .007$ and finally, computer usage across gender χ^2 (3, $n = 146$) = 7.1, $p = .03$ (Table 5).

Table 6. Frequencies from the significant results for age categories.

	65+ years (Baby Boomers)	69–77 years (Silent Generation)	78+ years (GI Generation)	85+ (Oldest Old)	Total
Have used a computer?					
No	0	18	8	4	30
Yes	23	64	21	7	115
Total	23	82	29	11	145
Purpose for using the Internet (banking)					
No response	12	44	13	6	75
Yes	11	26	7	1	45
No reply	0	1	1	0	2
Not applicable	0	12	10	4	26
Total	23	82	30	11	146
Purpose for using the Internet (online shopping)					
No response	14	50	15	4	83
Yes	9	20	5	3	37
Not applicable	0	12	10	4	26
Total	23	82	30	11	146
Purpose for using a computer (database)					
No response	17	56	15	6	94
Yes	6	14	5	1	26
Not applicable	0	12	10	4	26
Total	23	82	30	11	146

Subanalyses for different age groups

Further analyses were undertaken in the form of a chi-square test. Only statistically significant results are provided hereafter. A total of four survey items were found to show statistical significance, primarily associated to purpose (online banking) χ^2 (3, n = 146) = 19.4, $p < .001$; purpose (online shopping) χ^2 (3, n = 146) = 8.7; p = .03, purpose (database) χ^2 (3, n = 146) = 12.11, p = .007; and computer usage χ^2 (2, n = 146) = 7.1, p = .03 (Table 6).

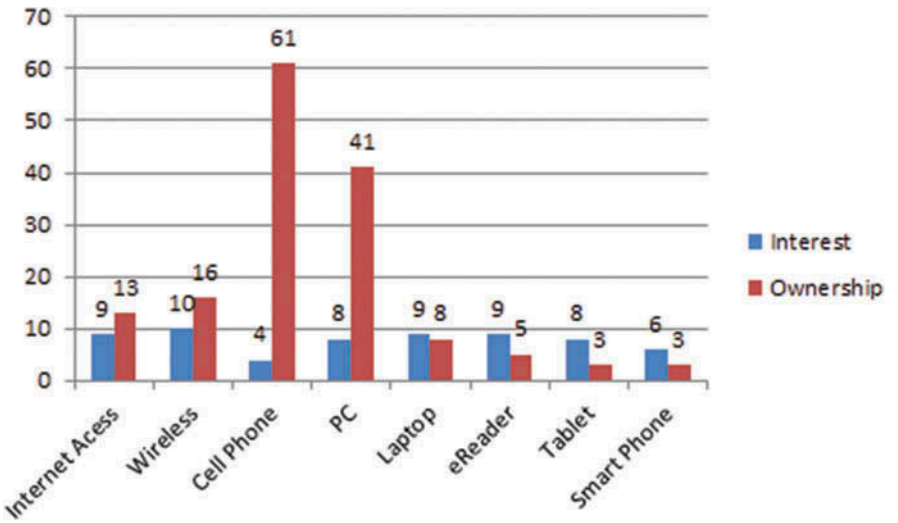

Figure 1. The technology ownership and interest of older adults (Orlov, 2011). Permission granted by Linkage Connect http://linkageconnect.com/.

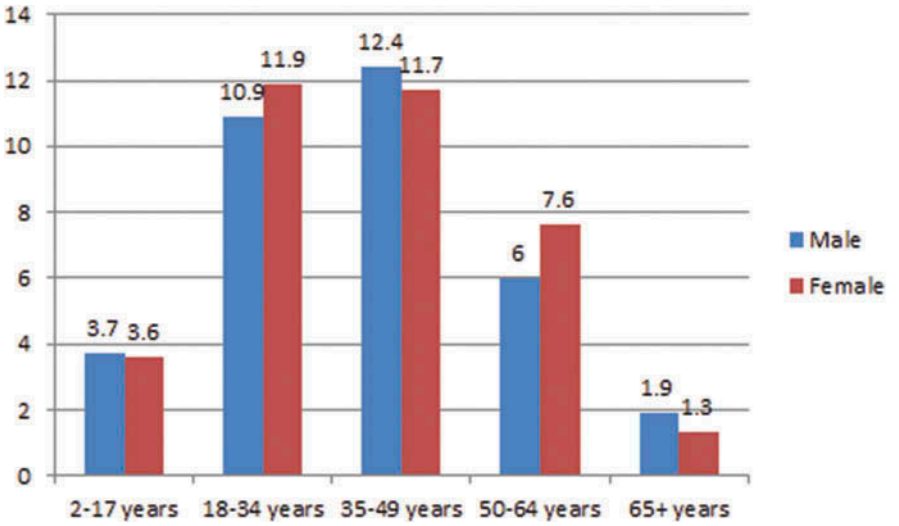

Figure 2. Facebook's greatest growth in global* audience numbers has come from people aged 35–49. Source: Nielsen Online, Global Index, December 2007–December 2008. E.g. between Dec 07 and Dec 08 there was a 3.7 million global increase in the number of 2–17 year old males visiting Facebook. *Global refers to AU, BR, CH, DE, ES, FR, IT, UK & USA only.

Discussion

The results showed that there are only marginal differences in computer usage between study centers, gender, and age groups. However, across all three subanalyses the primary results showed significance across the items of purpose (e.g., online shopping, online banking, database, and social networking). Our results were in line with previous research by Orlov (2011), who reported mobile phones and personal computers with Internet access as the most popular digital devices of older adults aged between 65 and 100 years (Figure 1).

E-mailing was reported to be the most common form of communication of older adults with their friends, families and colleagues (Madden, 2010). New technologies have several advantages and in the respective report published by Linkage Connect, 122,000 members reported a variety of online behaviors and social media habits. For example; members reported communication and behavior online or via social media sites including online forums (13%), sharing photos (39%), accessing news via the Internet (44%), sending e-mails (53%), and communicating with family (66%) (Orlov, 2011). Similar rationales for owning and accessing technology were reported by Hannon and Blackwell (2007). Similar rationales for owning and accessing technology were reported by Hannon and Blackwell (2007).

Demos (http://www.demos.co.uk/) undertook a series of data collection comprising three primary qualitative approaches—interviews, case studies, and focus groups—to ascertain whether there is a digital divide, and if so, how deep is this divide. Participant recruitment included two sets of older adults, those aged 55–65 years and adults aged 75 years or older. Interviews were held with several stakeholders including "Age Concern, Help the Aged, UK Online, the Digital Inclusion Team and AbilityNet" (Hannon & Bradwell, 2007, p. 4). To identify and ascertain if there were any differences in regards to technology use, a series of focus groups were conducted across both age categories. In turn, these provided an insight into the use of technology across different generational cohorts.

The results presented in this paper showed that the majority of the participants would be categorized as both first and second order (Chinn & Fairlie, 2004) of the digital divide. With regards to computer usage, these results suggested that there is little or no digital divide at all.

The rationale for using a computer showed a common theme across the three different subanalyses. Participants, regardless of study center, gender, or age group, chose to use a computer database to access database software. However, there were slight differences regarding computer use to access the Internet

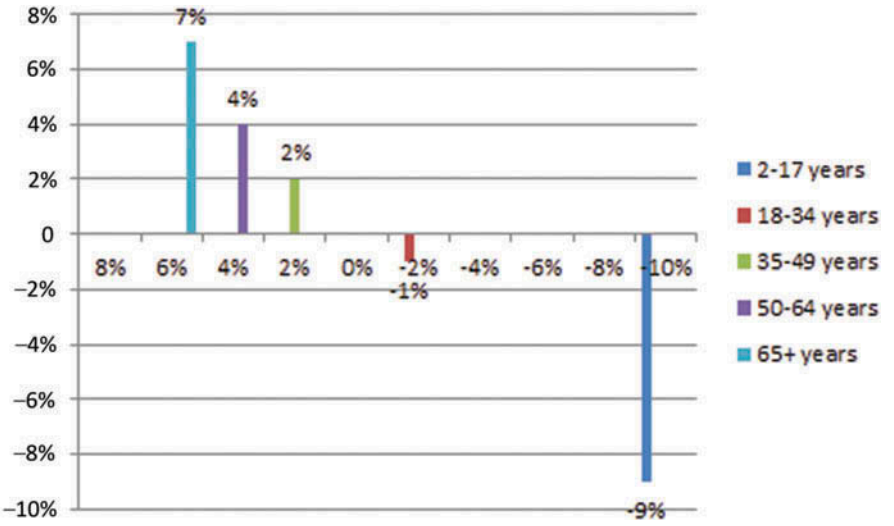

Figure 3. The audience composition of Member Community websites is shifting from the young to the old. Source: Nielsen Online, Custom Analytics, December 2007–December 2008. E.g. between Dec 07 and Dec 08, the share of the online global* audience to 'Member Community' sites accounted for by 2–17 year olds decreased relatively by 9%. *Global refers to AU, BR, CH, DE, ES, FR, IT, UK& USA only.

(social networking) which were seen across study centers and gender but not age groups. Utilizing a computer for the purpose of online banking and online shopping were significant for gender and age groups but not study centers. Finally, results revealed that the participants choosing to learn how to use social networking sites were significant in the study center section but not for gender or age groups.

Nielsen (2009) outlined that the use of such online behavior can be mainly be attributed to young audiences. Our analyses across the different age groups support this notion, showing no significant trends associated with social networking and age; but there was a trend for gender across study centers. However, social networking is currently undergoing changes to reach wider audiences via sites such as Who Knows Whom, (Nielsen, 2009) or sites focusing on neighborhood communities and employment (Nielsen, 2009). Figures 2 and 3 illustrate the gender and age growth of Facebook users across several countries between 2007 and 2008.

Previous research (Cockburn, 1985; Hellaman, 1996; Wajcman, 1991; and Zimmerman, 1983) reported that the use of technology within a domestic environment was perceived as masculine and primarily used by males, even though the authors noted that there is the potential for the technology to be oriented toward both genders. The use of the personal computer and related technologies, such as the Internet and social networking sites, enable male and female users to communicate and engage at their own leisure. In this context, Hellman (1996) states that the "process of diffusion where an innovation trickles down from early adopters (male initiators) to the rest of the population (women followers)" (Hellman, 1996, p. 25) is not necessarily the responsibility of male users, but also of the female followers.

However, the results of the subanalyses (age groups, gender, study centers) indicated several trends including social networking habits, using the Internet for online shopping and e-banking as well as using a computer as a database. However, further work is needed to explore the Internet and online social habits of older adults to gain a greater understanding of this area.

Although participants were required to complete the technology survey prior to commencing the exercise program, one of the limitations of this work is that not all participants assigned to the intervention group completed the technology survey across the three study centers. Although the data shows technology take-up and use by older adults in this RCT across three study centers, having a full response rate could have provided a greater insight into technology use.

Only limited quantitative research about technology ownership, technology use, rationale for using technology, social networking habits and frequency/length of time using technology is available in the literature. It is, therefore, suggested that future research focusing on technology use in older adults should focus on these topics, especially in the context of engagement, health rehabilitation, and quality of life. Additional qualitative research, such as in-depth interviews, may provide a greater understanding of technology use and online behavior not covered by traditional questionnaires. It was recommended that future studies associated with technology integration and execution by older adults should collect data based on participants' computer use, access, ownership, purpose, and social networking habits. The authors suggest the collection of this type of data would provide the academic community with a valuable insight into technology uptake of older adults.

The implications of this work illustrate that across all future studies that integrate technology to aid older adults should also collect data associated to their technology behavior. This would be a bid to understand how future deployment of technology may aid or hinder results and successful take-up. Additionally, by collecting data associated with participants' technology behavior and habits it may be possible in the future to ascertain patterns through published literature, which at present is limited.

Conclusions

The results from this study indicate that there is still a digital divide experienced by older adults despite showing a positive trend towards computer and Internet usage. The trends associated to Internet and social networking habits and behaviors have also proved positive and interesting from an international and multicenterd standpoint. Although this research area is slowly growing, information and statistics detailing human perspectives and behavior in regards to Internet and social networking habits still require further exploration. By undertaking the proposed suggestions of future work in regards to the methodological approaches and the type of data collection we anticipate this would add to the field of gerontechnology research.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This project has received funding from the European Union's Seventh Framework Programme for research, technological development, and demonstration under grant agreement no. 287361. The Australian arm is funded by an Australian National Health and Medical Research Council (NHMRC) EU collaboration grant (#1038210). The content of the manuscript does not represent the opinion of the European Community or NHMRC. The funding sources have no role in any aspects of this study. Yves J. Gschwind has been financially supported by a research grant from the Margarete and Walter Lichtenstein Foundation, Basel, Switzerland. All other authors are supported by the iStoppFalls project, European Community Grant Agreement 287361. On behalf of the iStoppFalls consortium, we would like to thank all the participants who take part in the study. Trial registration: Australian New Zealand Clinical Trials Registry Trial ID: ACTRN12614000096651. International Standard Randomised Controlled Trial Number: ISRCTN15932647.

Additional acknowledgement is noted to the Monetize Me project which has received funding from the Engineering and Physical Sciences Research Council (EPSRC), under grant agreement no [EP/L021285/1]. This has enabled Dr. Hannah R. Marston the time to undertake the lead on writing this publication.

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Appendix A: Technology survey

Secondly, we would like to know some basic details about your use of various technologies

Section B: Technology use

Section B: 1) Computer ownership.

Q1	Do you own a computer	[] Yes [] No
Q1a	If YES, What type of computer do you own?	[] Personal Computer (PC) [] Mactintosh (MAC) [] Other
Q2	Do you have access to a computer?	[] Yes [] No
Q3	Have you used a computer?	[] Yes [] No
***If you answered NO to Q3, then please skip Q4-7, and turn to page 2**		
Q4	How long have you used a computer? (please tick one answer)	[] More than 1 year [] More than 6 months [] More than 3 months [] More than 2 months [] More than 1 month [] 1 month or less
Q5	How frequently do you use a computer? (please tick one answer)	[] More than once a day [] About once a day [] More than once a week [] More than once a month [] Less than once a month [] I normally do not use a computer
Q6	How many hours a week do you use a computer? (please tick one answer)	[] 0-1 hours [] less than 5 hours [] 6-10 hours [] 10+ hours
Q7	What do you use a computer for? (please tick all that apply)	[] Word processing [] Drawing [] Email [] Playing games [] Internet (checking facts) [] Internet (Social networking, EG. Facebook) [] Internet (banking) [] Internet (purchasing) [] Database/Spreadsheets [] Other

Section B: 2) Videogame ownership.

Q8	Do you own a videogame console?	[] Yes
		[] No
Q8a	If YES, what type of game console do you own? (please tick all that apply)	[] Nintendo Wii
		[] Nintendo Gamecube
		[] Sony PlayStation 1
		[] Sony PlayStation 2
		[] Sony PlayStation 3
		[] Microsoft Xbox
		[] Microsoft Xbox-360
		[] Microsoft Xbox Kinect
Q9	Do you have access to a computer game console?	[] Yes
		[] No
Q10	Do you have access to a computer that can be used to play games?	[] Yes
		[] No
Q11	Have you played videogames	[] Yes
		[] No
Q12	Do you have children?	[] Yes
		[] No
Q13	Do you play games with your children?	[] Yes
		[] No
Q14	Do your children play games?	[] Yes
		[] No
		[] Don't Know
Q15	Do you have grand-children?	[] Yes
		[] No
Q16	Do you play games with your grand-children?	[] Yes
		[] No
Q17	Do your grand-children play games?	[] Yes
		[] No
		[] Don't Know
Q18	Do you own a handheld videogame console (E.g. Nintendo DS/DS Lite / Sony PSP)	[] Yes
		[] No
Q18a	If YES, what type of handheld do you own? (please tick all that apply)	[] Sony PSP
		[] Nintendo DS
		[] Nintendo DSi
		[] Nintendo DSi Lite
Q19	Do you play games on the Internet?	[] Yes
		[] No
Q20	Where on the Internet do you play games? (please tick all that apply)	[] Facebook
		[] Subscription to a particular game (E.g WOW)
		[] Other

Section B: 3) Length & frequency of game playing.

Q21	Do you play games?	[] Yes [] No
If you answered NO to Q21, then please skip this section and go to Q26 on page 4		
Q22	How long have you played games? (please tick one answer)	[] More than 1 year [] More than 6 months [] More than 3 months [] More than 2months [] More than 1 month [] 1 month or less
Q23	How Frequently do you play games? (please tick one answer)	[] More than once a day [] About once a day [] More than once a week [] More than once a month [] Less than once a month [] I normally do not play computer games
Q24	How many hours a week do you play games?	[] 0-1 hours [] less than 5 hours [] 6-10 hours [] 10+ hours

Section B: 4) Videogame genres.

Q25	What type of videogames do you play? (please tick all that apply)	[] Shooter [] Platform [] Sports [] Puzzle [] Adventure [] Strategy [] Exergame [] Action [] Role-playing game (RPG) [] Simulation [] Real-time strategy (RTS) [] Massively multiplayer online role-playing (MMORPG) E.G World of Warcraft (WOW) [] Other
Q26	What type of games would you **consider** playing? (please tick all that apply)	[] Shooter [] Platform [] Sports [] Puzzle [] Adventure [] Strategy [] Exergame [] Action [] Role-playing game (RPG) [] Simulation [] Real-time strategy (RTS) [] Massively multiplayer online role-playing (MMORPG) E.G World of Warcraft (WOW) [] Other

Please turn to the next page to continue completing the survey

Section B: 6) Purchasing habits.

Q27	Have you ever bought a game that you would play yourself?	[] Yes [] No
***If you answered NO please go to Q35 on page 6**		
Q28a	If SO, how many games have you bought?	[] 0-5 games [] 6-10 games [] 11-15 games [] 16-20 games [] 21-25 games [] 26-30 games [] 30+ games
Q29	Have you ever bought a game for someone else?	[] Yes [] No
Q30a	If SO, how many games have you bought?	[] 0-5 games [] 6-10 games [] 11-15 games [] 16-20 games [] 21-25 games [] 26-30 games [] 30+ games
Q31	Who did you buy a game for? (please tick all that apply)	[] Spouse [] Child [] Grandchild [] Friend [] Family member
Q32	What was the reason for buying these games?	[] Birthday present [] A treat [] Christmas present [] Other
Q33	Where did you buy these games? (please tick all that apply)	[] Supermarket [] Computer shop [] High-Street shop [] Rental shop [] Online (E.g Amazon) [] Other

Section B: 7) Learning to play games.

Q34	How did you learn to play games? (please tick all that apply)	[] From a grandchild [] From a child [] From a friend [] From a family member [] Taught myself [] Taught in class [] I have not learned to play games [] Other
Q35	Would you be willing to learn how to play a game?	[] Yes [] No [] Not sure
Q35a	If YES, please write your reason(s) why	
Q35b	If NO, please write your reason(s) why	

Section B: 5) Digital device ownership.

Q36	Do you own any of the following digital devices? (please tick all that apply)	[] Mobile phone [] Blackberry [] Apple iPad [] Apple iPod [] Apple iPhone [] Tablet [] Other
Q37	If SO, have you played games on them?	[] Yes [] No
Q37a	If YES, have you played games on them? (please tick all that apply)	[] Mobile phone [] Blackberry [] Apple iPad [] Apple iPod [] Apple iPhone [] Tablet [] Other

Section B: 8) Hobbies & interests.

Q38	What kind of hobbies do you do in your spare time? (please tick all that apply)	[] Arts & Crafts (needlecraft, collecting, making objects) [] Dancing [] Walking [] Card games [] Sport (gym, running, yoga) [] Puzzles/Jigsaws [] Concerts (inc. singing) [] [] Theatre [] Other (Please State)
Q39	Would you consider playing a game related to your hobby/interest?	[] Yes [] No [] Not sure
Q39a	If YES, please write your reason(s) why	
Q39b	If NO, please write your reason(s) why	

Section B: 9) Social networking.

Q40	Do you use any social networking sites?	[] Yes
		[] No
		[] Not sure
Q41	What social networking sites do you use? (please tick all that apply)	[] Facebook
		[] Google+
		[] StudiVZ
		[] Twitter
		[] Other
Q42	How long have you been using social networking sites? (please tick one answer)	[] More than 1 year
		[] More than 6 months
		[] More than 3 months
		[] More than 2months
		[] More than 1 month
		[] 1 month or less
Q43	How frequently do you use social networking sites? (please tick one answer)	[] More than once a day
		[] About once a day
		[] More than once a week
		[] More than once a month
		[] Less than once a month
		[] I normally do not play computer games
Q44	Who introduced you to social networking? (please tick all that apply)	[] A friend
		[] A family member
		[] A child
		[] A grand-child
		[] Myself
		[] Other

We would like to thank you for completing this survey